



Office of Sustainable Housing and Communities

Guidance on Performance Measurement and Flagship Sustainability Indicator Fact Sheets



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Introduction: Performance Measurement in the Sustainable Communities Initiative

Performance measurement refers to the ongoing monitoring and reporting of accomplishments toward meeting a set of goals. One of the most innovative aspects of the Sustainable Communities Initiative is that it encourages for community-driven, data-supported approaches to sustainable development. This includes allowing communities to develop goals, and ways of measuring progress toward those goals, that are appropriate to their local context, and created through an iterative process of community engagement over time. While this flexibility is a strength of the program, it also creates unique challenges for performance measurement, both from a grant management and a program evaluation perspective, as each grantee may have a unique set of performance measures that will not be exactly like those of any other grantee.

In terms of the Sustainable Communities Initiative, there are three major objectives of performance measurement:

1. To capture data that can be used to **demonstrate the impact** of the Sustainable Communities Initiative, and to answer questions regarding best practices and lessons learned;
2. To begin to **develop a common framework** across the country for the measurement of progress toward making our communities more sustainable; and
3. To empower individual communities to **track progress toward their individual sustainability goals**.

The Office of Sustainable Housing and Communities (OSHC) has entered into two partnerships to achieve these goals:

1. OSHC has partnered with a team of program evaluators and technical assistance providers from Summit Consulting and ICF International to measure performance in the Sustainable Communities Initiative with the goal of demonstrating the impact of the initiative and answering questions regarding best practices and lessons learned.
2. OSHC has partnered with the Partnership for Sustainable Communities (PSC), made up of members from HUD, the Environmental Protection Agency (EPA) and the Department of Transportation (DOT). Together these agencies are working through the PSC to coordinate federal housing, transportation, water, and other infrastructure investments. One goal of this partnership is to begin to develop a common framework for the measurement of progress toward making our communities more sustainable.

In addition, HUD OSHC requires grantees in the Regional Planning Grant Program (RPG) and Community Challenge Grant Program (CCG) to track progress toward their individual sustainability goals.

These goals and partnerships overlap in a variety of ways, and performance measures developed for one purpose will often inform the other purposes. This memo focuses on one particular group of performance measures, called the **Flagship Sustainability Indicators**. In developing these measures, OSHC worked closely with the PSC over many months to determine categories of common

Sustainability/Livability goals. It also worked closely with the program evaluators, including a team specializing in training and technical assistance, to refine the Indicators into performance measures that would demonstrate the impact of the Sustainable Communities Initiative over time, while also allowing communities to track progress toward their individual sustainability goals.

The categories of common Sustainability/Livability goals that the PSC has developed are defined under one of the following five ***Sustainability Outcomes***:

Transportation Choice: Livable communities feature multiple, safe and convenient options for more people to walk, bike, or ride transit in addition to driving in their cars. Less driving alone means less congestion and less air pollution. Using alternative modes of transportation also leads to better public health outcomes as people naturally get more exercise.

Housing Affordability: Housing is the single biggest cost for American households, and the share of household income it has claimed has been increasing for decades. Reducing families' housing costs is the way to make the biggest impact on people's quality of life and financial sustainability.

Equitable Development: New growth and development should extend benefits to all community members. This includes creating more economic opportunities for low income residents as well as proactively addressing the potential for the displacement of low-income households that can result from neighborhood revitalization efforts.

Economic Resilience: A community's ability to weather economic shocks depends on the stability, efficiency, and diversity of its economy. Regions can become more resilient by diversifying industry and employment bases and increasing economic productivity per unit of energy consumption, which makes them more economically competitive and resilient to energy prices rises.

Growth through Reinvestment: Focusing new housing and commercial growth in areas that have already been urbanized helps to "recycle" vacant or underutilized land while increasing the vitality of existing communities and safeguarding rural landscapes. It also makes better use of existing public infrastructure while avoiding the expense of expanding infrastructure to new areas.

Table 1 provides an overview of the Sustainability Outcomes and the Flagship Sustainability Indicators associated with each category.

Table 1: Summary of the Flagship Sustainability Indicators

Sustainability Outcome	Flagship Sustainability Indicators
1. Transportation Choice	1.1 Total Percentage of workers commuting via walking, biking, transit, or rideshare
2. Housing Affordability	2.1 Percentage of renter units and owner units affordable to households earning 80% of HUD area median family income
3. Equitable Development Note: All indicators calculated separately for: 1) The entire planning area	3.1. H+T Affordability: Proportion of household income spent on housing and transportation costs

Sustainability Outcome	Flagship Sustainability Indicators
2) Census tracts in which at least 50% of households are low-to- moderate income (earning 80 percent or less of HUD area median family income)	3.2 Access to healthy food choices: Percent of total population that reside in a low income census tract AND reside more than one mile from a supermarket/large grocery store (for rural census tracts, the distance is more than 10 miles)
	3.3 Access to open space: Percent of population that reside within 1 mile of a park or open space for rural or ½ mile for urban
4. Economic Resilience	4.1 Economic Diversification Index
	4.2 General local government debt to revenue ratio
5. Growth through Reinvestment	5.1 Net acres of agricultural and natural resource land lost annually to development per new resident

This document provides instructional guidance and fact sheets on collecting and documenting grantee-performance measures related to Sustainability Outcomes captured by the **Flagship Sustainability Indicators**. The fact sheets provide detailed guidance for grantees on how to calculate each indicator, including:

- The purpose of the indicator
- The data sources needed to calculate the indicator
- The data elements that make up the indicator
- Step-by-step guidance on obtaining data and calculating the measure based on the particular grantee project or jurisdiction area

Training and Technical Assistance

Training and technical assistance will be available to grantees that have questions or need help with calculations or data sources for the Flagship Sustainability Indicators. Technical experts will field questions submitted by grantees at OSHChelp@icfi.com. Grantees may inquire about specific technical issues on data collection, or may inquire about broader use of the Flagship Sustainability Indicators on their project. A series of performance measurement webinars will include topics such as data collection tips and troubleshooting, consensus building and communicating metrics for diverse audiences, or analysis of best practices on one or two specific indicators. Grantees may request topics for upcoming trainings at OSHChelp@icfi.com. Finally, a small subset of grantees with the greatest need will be provided in-depth technical assistance, including on-site support. Grantees may contact their Government Technical Representative (GTR) if they would like to be considered for this assistance.

Reporting on Performance Measures

While the focus of this document is the Flagship Sustainability Indicators, the following information is provided to give grantees an overview of the types of performance measurement information HUD intends to collect, and how the Flagship Sustainability Indicators relate to other performance measures reporting required of grantees.

Flagship Sustainability Indicators – Report Through Form SF-PPR-A

Grantees are asked to report on the baseline value of each Flagship Sustainability Indicator for their community or region, using *Form SF-PPR-A Performance Measures*. **Form SF-PPR-A is required for 2011 grantees and is optional for 2010 grantees.** As many of these indicators have not yet been utilized on a national scale, HUD will provide significant technical assistance to assist grantees with completing this form, and some communities may be exempt from calculating some indicators based on data availability or applicability. In addition, the Evaluation Team, along with the Performance Measures Training and Technical Assistance Team (TA Team), will provide capacity building to the grantees to help them better measure these indicators both in the baseline period and over time. OSHC's grantees will also benefit from working with the Sustainable Communities Capacity Building Providers.

Grantees will provide baseline information at the beginning of the grant period on each Flagship Sustainability Indicator. Because these indicators have not yet been utilized on a national scale, grantees' ability to calculate the indicator may be refined throughout the grant period, in which case the *SF-PPR-A* should be updated as the grantees develop more accurate calculations as a result of training and technical assistance or the availability of new data. However, because of the relative infrequency with which data are updated, and also due to the fact that progress toward sustainability is a long-term process, HUD does not expect to see the value of each indicator change within the course of the three-year grant period.

Because of this, the Flagship Sustainability Indicators will NOT be used for evaluation of a grant, or for overall program evaluation purposes. Rather than being designed to measure the impact of a single grant or planning program, they are designed to provide both federal policymakers and local planners with a tool for examining the overall sustainability profile of a region or neighborhood at a single point in time.

Planning Outcomes – Report Through HUD e-Logic Model

In addition to the Flagship Sustainability Indicators, grantees have already been instructed by HUD to report on other performance measures through a variety of reporting mechanisms, including the HUD e-Logic model. Each grantee's e-Logic model will contain a set of Planning Outcomes agreed upon by the grantee and the GTR, which are listed in the "Outcomes" column of the *Year 1*, *Year 2*, and *Year 3* tabs of the model. Reporting on Planning Outcomes is intended to measure the changes in a community or region that are a direct result of the planning effort conducted by the grantee with HUD funding. Reporting on most outcomes will be specific to changes that are directly related to the planning process. For example, Planning Outcomes in the e-Logic model include *Number of Brownfield Sites Recommended for Development*, *Dollars invested in existing commercial and industrial facilities*, and

Reduction in facilities that cause environmental or public health hazards sited near residential areas. For outcomes such as these, grantees should provide data regarding the direct impact of the planning effort in these terms.

Some Planning Outcomes are noted as being *projected* or *planned* outcomes (e.g., *Projected Change in the Retail Food Environment Index*, *Planned number of housing units constructed on underutilized infill site*.) Projected and planned values may be based on scenario modeling conducted as part of the planning process, or based on projections, goals, or land use changes included in an adopted plan, or other changes in local statutes. Many of the planned or projected outcomes are measured through overall changes in a community that are affected by the grant as well as other outside factors.

All 2010 and 2011 grantees are required to report on those Planning Outcomes agreed to in their e-Logic model. A subset of e-Logic model outcomes of the most interest to HUD will be considered “Core” Planning Outcomes, and will be used for evaluation of the entire Sustainable Communities Initiative. Guidance and technical assistance will be forthcoming from HUD regarding the subset of e-Logic model outcomes that are considered “Core”.

Grantee-Driven Performance Measures

Grantees are also encouraged to develop performance measures that are appropriate to their local context, and created through an iterative process of community engagement in the planning activities over time. This may include some performance measures that are not included in either of the categories described above. Therefore, grantees are encouraged to use other, customized performance measures to guide their own planning processes, and to provide information on additional performance measures that they are tracking in their reporting to HUD, either as customized outcomes in their e-Logic models, or through other reporting mechanisms such as their performance progress reports (PPRs). Such performance measures will NOT be used for formal program evaluation purposes, but any information grantees can provide on the use of other customized performance measures will be helpful in telling the story of each community’s success, and sharing best practices in the field.

Flagship Sustainability Indicator Fact Sheets

The following fact sheets contain information for grantees on calculating the Flagship Sustainability Indicators, including steps for collecting the data and making the calculations necessary to report on these indicators. Each section on an individual indicator ends with an “If Data are Not Available” subsection that offers guidance to grantees who cannot find the data required to calculate a given indicator.

A note on data geography

In general, the geographical level of measurement for each of the indicators outlined below may not exactly match the geographical measure of your particular planning area. Within each measure in the following sections, the guidance gives instructions on how to match each geographical level of measurement to your planning area. However, if this guidance still does not seem to match your particular planning area, additional technical assistance is available to help you interpret this data. For rural grantees or those who live in an area where data are sparse, guidance is given on what to do if data are not available at all. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

Additional materials

Several indicators draw on data from the American Community Survey (ACS). Community Challenge grantees working on project areas at the neighborhood or corridor level may need to collect data from ACS 5-year Estimates at the block group level. This detailed guidance is provided in an appendix. In addition, two excel spreadsheets are available to help calculate data for specific measures. These include an *Economic Diversification Index Calculation Worksheet* and a *Weighted Averages Calculation Worksheet*.

Note: If a grantee is unable to locate the data required for any indicator, the grantee can request assistance from the TA team to locate alternative data sources or measures to meet that indicator’s overall objective. If data are unavailable, a waiver may be requested from the grantee’s GTR, exempting the grantee from the reporting requirement under that indicator.

1. Transportation Choice

1.1. Transportation Choice: Total percentage of workers commuting via walking, biking, transit, and carpooling

Purpose of the Indicator: This indicator captures the share of travel using non-single occupancy vehicle modes – carpool, transit, bicycle, and walking. An increase in travel by carpool, transit, bicycle, or walking, and a corresponding reduction in automobile travel, is linked to a number of sustainability outcomes. Reducing peak-hour automobile travel reduces traffic congestion and emissions of local air pollutants and greenhouse gases. Increased walking and bicycling can increase physical activity and associated public health benefits. Increasing travel by walking, bicycling, transit and carpool can also reduce individual transportation costs while maximizing the value of public transportation investments. For individuals without access to a car, including older Americans, low-income households, and those unable to drive, increased transportation connectivity increases access to employment opportunities and local amenities through walking, bicycling and transit.

A focus on work trips is appropriate for a measure to track progress over time (using historical data), because the Census reports travel by mode for work trips only. Most transit agencies track increases in ridership, and some jurisdictions conduct annual bicycle ridership surveys, or bike/pedestrian surveys, but total bike/pedestrian/transit/carpool trip numbers are rarely measured at the local or regional level.

Key Data Sources:

- The **American Community Survey (ACS)** is an ongoing survey that provides data every year on the social, demographic, and housing characteristics of communities throughout the U.S. Beginning in 2010, three versions of the ACS will be published annually. The 5-year ACS contains data estimated at the level of block groups, averaged over the previous 5 years. The 1-year and 3-year ACS contain estimates averaged over smaller periods of time. Data are available at the county level for most counties in the 1-year ACS. Travel-to-work data are available for 2005 and subsequent years. Individual data tables down to the census tract level can be viewed and downloaded through a web-based platform (<http://factfinder2.census.gov/>). Data for census block groups must be extracted manually from the Summary Files.

Local and regional transportation agencies often conduct their own travel surveys that measure journey-to-work trips. However, use of these data is not recommended because these surveys are often updated infrequently and because methodology often changes from survey to survey. Using ACS data will allow agencies to track these data consistently over time because the ACS is regularly updated using a consistent methodology.

Data Elements: All required data elements can be sourced from a single table in the ACS (or Census). In the ACS, data are found in *Table B08301. Means of Transportation to Work for Workers 16 and Over*. Data elements required are:

- Number of workers commuting by carpool
- Number of workers commuting by public transportation (excluding taxicab)

- Number of workers commuting by bicycle
- Number of workers commuting by foot (walking)
- Total number of workers

Step-by-step Guidance on Obtaining Data:

1. Go to <http://factfinder2.census.gov>
2. In the left-hand sidebar, click on “Topics.”
3. Under “Select Topics to add to ‘Your Selections,’” click on the plus sign next to “People.”
4. In the expanded list of topics that appears under “People,” click on the plus sign next to “Employment.”
5. In the expanded list of topics that appears under “Employment,” click on “Commuting (Journey to Work)”
6. In the left-hand sidebar, click on “Geographies.”
7. Select a geographic type from the drop-down menu. The geographic type will depend upon the scope of grant projects. In general:
 - a. Community Challenge grantees working on statewide projects should select “State.”
 - b. Regional Planning Grantees should select “Metro Statistical Area/Micro Statistical Area 2010.”
 - c. Community Challenge grantees working on corridor- or neighborhood-scale projects will need to identify the census tracts or block groups that make up the project area using the “Address” or “Map” tabs at the top of the “Select Geographies” box.
 - i. Census tract-level data can be downloaded by selecting “Census Tract” in the “Select a geographic type” menu, selecting a state and county from the drop-down menus, and then selecting a census tract from the resulting list in the box marked “Select one or more geographic areas and click Add to Your Selections.”
 - ii. Block group data can be downloaded from the ACS Summary File by following the instructions in Appendix A: *Working with Census Block Group Data*.
 - d. Note that you can select multiple geographies from the drop-down menus by holding down the control key and clicking on multiple states, metro areas, or census tracts.

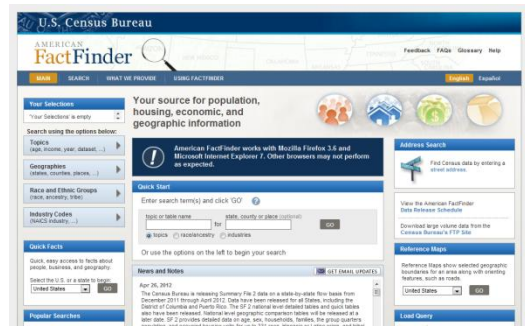


Figure 1.1-1: Main page for American FactFinder, the information portal for American Community Survey data.

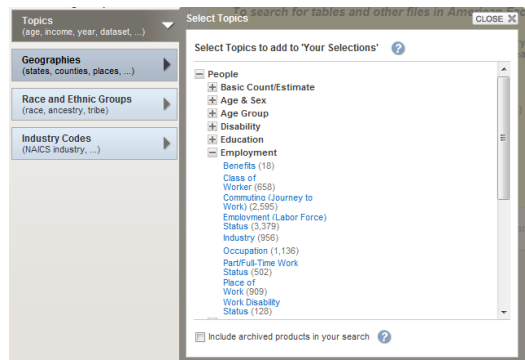


Figure 1.1-2: Selecting employment-related topics.

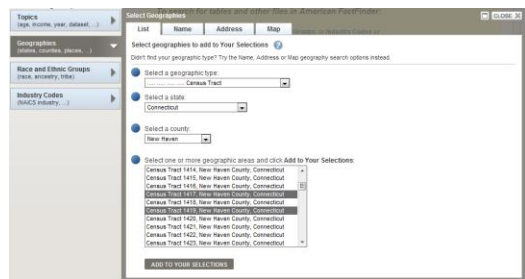


Figure 1.1-3: Selecting multiple census tracts from the Geographies menu.

8. Click the “Add to Your Selections” button.
9. Click on “Close” in the upper-right corner of the “Select Geographies” box.
10. Scroll through the search results until you see the *Table ID B08301: Means of Transportation to Work*, and click on the table title to view the table.
 - a. If there are a large number of search results, you can locate the table more quickly by entering “B08301” in the “Narrow your search” box at the top of the “Search results” window.
 - b. Multiple results from different years and different estimates (1-year, 3-year, or 5-year) may be available for the same table. Select data from the desired year using estimate that is collected over the shortest time span (i.e., 1-year estimates are more desirable than 3- or 5-year estimates; 3-year estimates are more desirable than 5-year estimates).
 - c. At the top of the table view, under “Actions,” click on “Download” to download the file in Excel format in order to facilitate calculations. If the data estimates download formatted as text, click the “!” error to convert them to numbers in order to facilitate calculations.

Basic Calculation Steps:

1. Sum number of workers commuting by carpool, public transportation, bicycling, and walking.
2. Divide by total number of workers and multiply by 100 to calculate the percentage of workers commuting by carpool, public transportation, bicycle, and foot.
3. If using multiple census geographies, create a weighted average by multiplying the percentage of workers commuting by carpool, public transportation, bicycle, and foot within each given geographical area by the percentage of total workers within the project area that are located within that area, and summing the results across all geographic areas. For in-depth instructions on calculating weighted averages, including sample calculations, refer to the separate *Weighted Averages Calculation Worksheet*.

Geographies, Data Updates, and Other Things to Consider: This indicator can be calculated for almost any type of geography, including counties, cities, multi-county regions, or subsets of counties. Note that the ACS and Census capture mode of travel to work for the *residents* of the selected geography, not *people employed* within the selected geography.

The geography of interest will determine the frequency with which data can be updated. Larger geographies, including most counties, are included in the 1-year ACS. Data for these counties can be updated annually. For Metropolitan Statistical Areas (MSAs) and most other multi-county regions, the indicator can be calculated for 2005 and all subsequent years.

For less populated counties, or for custom geographies that include partial cities or counties (such as a multimodal corridor), the 3-year or 5-year ACS must be used. While these datasets are updated annually, datasets including overlapping years should not be compared. For example, the 2006-2008 3-year ACS and the 2007-2009 3-year ACS cannot be compared to determine changes in mode of travel to work.

At the very least, data for this indicator are updated every 5 years for all geographies.

If Data are Not Available: The American Community Survey is a comprehensive nationwide survey, and data should be available for at least the county level for all areas of the U.S. However, the ACS data may not be available in a geography that exactly matches each project area. For example, the boundaries of census block groups or tracts may not exactly match up with the boundaries of a project area that is in a corridor. In this situation, grantees should gather data from all block groups or tracts where over 50 percent of the land area of the block group or tract is located within the project area.

If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

2. Housing Affordability

2.1 Housing Affordability: Percentage of housing units affordable to households earning 80 percent of the Housing and Urban Development Area Median Family Income, by owner and renter.

Purpose of the Indicator: This measure captures the percentage of housing within the project area that is affordable to households earning 80 percent of the area median family income. This indicator, combined with Indicator 3.1, paints a more complete picture of housing affordability and need, and provides grantees calculating Indicator 3.1 more information to better understand the respective impact of each component of the Combined Housing and Transportation Affordability Index.

This indicator uses the U.S. Department of Housing and Urban Development's Housing and Urban Development Area Median Family Income (HAMFI) to calculate affordability. This is the area median income for the metropolitan area, adjusted to reflect average family size. This is important since single-person households generally make less money than family households with two earners, but also may need less money because these households have fewer members. Using HAMFI instead of AMI allows users to control for differences in household size when examining affordability.

Key Data Sources:

- **Community Planning and Development (CPD) Maps** is an online tool (<http://egis.hud.gov/cpdmaps/>) created by HUD that allows users to access information about housing and economic conditions in their communities using a map-based interface. The tool contains information at the census tract level and above for the entire United States. CPD Maps draws data primarily from two sources. Demographic data come from the 5-year estimates of the 2005-2009 American Community Survey, and data on housing needs and supply come from the Comprehensive Housing Affordability Strategy (CHAS) data, which is a set of custom tabulations of Census data made available to HUD. CPD Maps also collects data on homelessness and public health from other HUD datasets and from the Center for Disease Control.

Local, regional, and state agencies may collect additional data on housing costs and conditions. However, use of this data is not recommended for the purpose of reporting on this indicator because different jurisdictions may use different definitions to describe housing needs and supply, and this may make it difficult to compare data nationally across different regions and states. Using data from CPD Maps allows grantees to track data consistently over time and to easily access information from project areas.

Data Elements: All required data elements can be found in the downloadable spreadsheet reports that are available from CPD Maps using the steps described below. These reports are organized into separate worksheets that describe demographics, housing needs, economic context, housing supply, and special needs. The required data elements are:

- On the Housing Supply worksheet:

- Total number of owner-occupied and renter-occupied households (from the “Total” row of the “Number of occupied housing units by tenure and household size” table)
- Number of owner- and renter-occupied households affordable to households earning 80 percent of the Housing and Urban Development area median income (from the “80% HAMFI” line in the “Units Affordable to Households Earning” table)

Step-by-step Guidance on Obtaining Data:

1. Go to <http://egis.hud.gov/cpdmaps/>
2. Close the Guide Me window that pops up on the screen.
3. Use the map tools to zoom in on the areas of interest.
4. Click on the Reports icon on the toolbar on the top of the screen.
5. In the Target Jurisdiction drop-down menu, select a geography:
 - a. Community Challenge grantees working on statewide projects should select “State.”
 - b. Regional Planning Grantees should select “County” or “Place” and then select the multiple counties or places that make up the project area.
 - c. Community Challenge grantees working on corridor- or neighborhood-scale projects should select “Tract” and then select the census tract or tracts that make up the project area.
6. Use the drawing controls in the window to select the project area on the map.
7. Click the Next button in the lower-right corner of the Reports window.
8. On the next screen, you will be prompted to choose an optional set of reference data to include in the report. “None (default)” should be selected; ensure that it is and then click the Next button.
9. On the next screen, you will be prompted to choose the data that you want to include in the report. Click the Uncheck All button, and then click the check boxes next to Housing Supply, then click the Next Button.
10. On the next screen, you can enter a customized title for the report if you wish, and then click the Finish button in the lower right-hand corner of the Reports window. Your browser will download an Excel file of the report. (Note: if the download does not begin, you may need to turn of the pop-up blocker on your website.)
11. Open the Excel file and retrieve the required data.

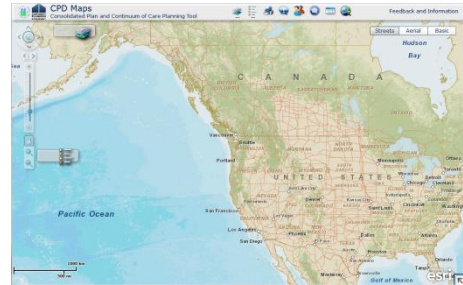


Figure 2.1-1: CPD Maps main page.

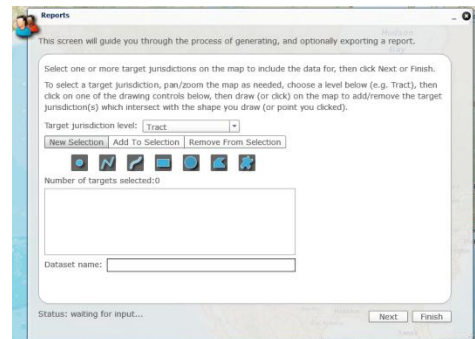


Figure 2.1-2: Tools for selecting areas from which to take reports. Note the reports icon in the upper left corner.

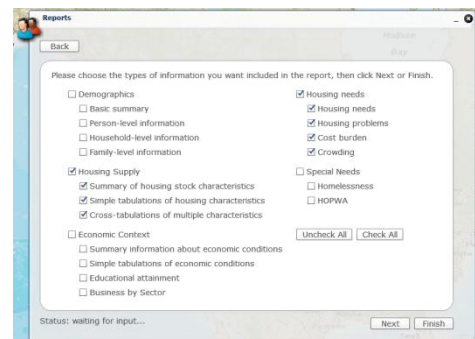


Figure 2.1-3: Reports data selection window with housing needs and housing supplies checked.

Basic Calculation Steps:

1. Divide the number of rental housing units affordable to households earning 80% of the HAMFI by the total number of rental households to calculate the percentage of rental housing units affordable to households earning 80% of the HAMFI.
2. Divide the number of owner-occupied housing units affordable to households earning 80% of the HAMFI by the total number of owner-occupied housing units to calculate the percentage of owner-occupied households affordable to households earning 80% of the HAMFI.

Geographies, Data Updates, and Other Things to Consider: The data required to calculate this indicator is available for all U.S. states, counties, county subdivisions, Census places (cities) and Census tracts. Grantees can calculate this indicator for other geographies, such as metropolitan areas or neighborhoods, by summing data across multiple places or tracts. CPD Maps is a new tool, and generally uses data that is current as of 2009. HUD intends to update the tool as new data becomes available, but does not have a regular program of updates planned.

If Data are Not Available: The data sources for CPD Maps are based on the American Community Survey and Census, which are comprehensive nationwide surveys, and data should be available at the county level for all areas of the U.S. However, the data may not be available in a geography that exactly matches each project area. For example, the boundaries of census tracts may not exactly match up with the boundaries of a project area that is in a corridor. In this situation, grantees should gather data from all tracts where over 50 percent of the land area of the tract is located within the project area.

If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

3. Equitable Development

3.1. Equitable Development: Combined Housing and Transportation Affordability: Proportion of household income spent on housing and transportation costs

Purpose of the Indicator: Traditional measures of housing affordability only focus on housing carrying costs and rents, and do not include the costs of transportation, which account for the second largest share of household expenditures after housing. The Housing and Transportation (H+T) Affordability Index measures the combined costs of housing and transportation as a percentage of income for most U.S. metropolitan areas. For housing costs, the Index uses data from the American Community Survey (ACS) on monthly owner costs and median gross rent, while it estimates transportation costs based on the economic characteristics of the average household in the region and neighborhood characteristics such as residential and job density, intersection density, and transit connectivity.

By tracking the H+T Affordability Index in project areas, grantees can gain a more complete picture of affordability and location efficiency.¹ The indicator will be particularly useful for projects that include new transportation infrastructure or new development near transit lines, because it will allow grantees to track whether the projects reduce household transportation costs enough to offset any increases in housing costs. Grantees will collect data on the H+T Affordability Index for the project area as a whole and for block groups located in census tracts within the project area where 50 percent of households are low-to-moderate income. A low-to-moderate income household is a household that earns 80 percent or less of the HUD area median family income (HAMFI).²

Key Data Sources:

- The **H+T Affordability Index** is calculated and updated by the Center for Neighborhood Technology (CNT), which maintains a website (<http://htaindex.cnt.org>) through which it makes data available. The H+T Index is constructed at the census block group level, primarily using data from the ACS 5-Year estimates, as well as geographic data on neighborhood characteristics. It currently covers most of the metropolitan and micropolitan areas, which the ACS refers to as Core Based Statistical Areas (CBSAs), in the United States. The H+T Index offers complete coverage of 877 of the 953 CBSAs. HUD is working to develop the Location Affordability Index, a housing and transportation affordability measure based in some part on the H+T Index. It will

¹ It is important to note that, for areas smaller than a metropolitan region, the H+T Affordability Index does not provide estimates of actual housing and transportation affordability, but rather serves as an Index of housing and transportation costs that can be used to compare neighborhoods within a region or, as data are updated, changes within a given neighborhood over time. This is because the Index is not based entirely on neighborhood-level data. Instead, it compares the sum of neighborhood-level housing costs and modeled transportation costs, which are estimated using a mix of regional average household economic data and neighborhood-level physical characteristics, with average regional household incomes. In other words, the Index does not track the actual amount that households within a given area likely pay for housing and transportation, but instead indicates the relative direction and magnitude of changes in household costs due to factors such as land use, urban form, transit accessibility, and the housing market.

² Again, the Index does not calculate the actual proportion of income that households earning less than 80 percent of the HAMFI spend on housing and transportation, but rather tracks whether factors such as land use, urban form, and transit accessibility cause transportation costs in neighborhoods with low median household incomes to be more or less expensive relative to other neighborhoods within a region. For example, if a neighborhood has both low household incomes and high housing and transportation costs, it is a sign that residents may benefit from targeted transportation investments.

enable grantees to continue to track the data required to calculate this indicator. It is expected that a measure using 2006-10 ACS data will be available in late 2012, and will have information available for a number of additional regions.

- The **American Community Survey (ACS)** is an ongoing survey that provides data every year on the social, demographic, and housing characteristics of communities throughout the U.S. Beginning in 2010, three versions of the ACS will be published annually. This indicator uses ACS data to identify block groups where household incomes are 50 percent or less of the area median income (AMI). The 5-year ACS contains data estimated at the level of block groups, averaged over the previous 5 years. The 1-year and 3-year ACS contain estimates averaged over smaller periods of time. Data are available at the county level for most counties in the 1-year ACS. Data on household incomes are available for 2005 and subsequent years. Individual data tables down to the census tract level can be viewed and downloaded through a web-based platform (<http://factfinder2.census.gov/>). Data for census block groups must be extracted manually from the Summary Files.
- **Community Planning and Development (CPD) Maps** is an online tool (<http://egis.hud.gov/cpdmaps/>) created by HUD that allows users to access information about housing and economic conditions in their communities using a map-based interface. The tool contains information at the census tract level and above for the entire United States. CPD Maps draws data primarily from two sources. Demographic data come from the 5-year estimates of the 2005-2009 American Community Survey, and data on housing needs and supply come from the Comprehensive Housing Affordability Strategy (CHAS) data, which is a set of custom tabulations of Census data made available to HUD. CPD Maps also collects data on homelessness and public health from other HUD datasets and from the Center for Disease Control.

Data Elements: The data required to calculate this indicator for the project area as a whole can be found through the H+T Affordability Index webpage in the pop-up windows that display housing and transportation costs as a percent of household income for selected geographies. Required data elements are:

- Housing + Transportation Costs
- % Income

This window displays data at the metro area, county, city, and block group level. If the project area is composed of multiple geographies, grantees will need to create a weighted average of housing costs across the project area using additional information on the number of households in each geographic area from the ACS, *Table ID B11001: Household Type (Including Living Alone)*. Required data elements are:

- Total Households

In order to calculate this indicator for block groups located in census tracts within the project area where 50 percent of households are low-to-moderate income, grantees will identify these census tracts using CPD Maps. Required data elements are:

- Low-Mod Census Tracts

Step-by-step Guidance on Obtaining Data:

To collect data for the project area as a whole:

1. Obtain housing and transportation affordability data for the project area:
 - a. Go to <http://htaindex.cnt.org/map/>
 - b. Enter the city, county, or metropolitan area from which you are seeking to obtain data in the search bar in the upper-left corner and click the “Find” button.
 - c. Using the map on the right, which is titled “Housing + Transportation Costs % Income,” navigate to the area from which you are interested in collecting data and click within the area.
 - d. A pop-up box will display showing the percentage of income spent on housing and transportation for the selected block group, as well as the metropolitan area, county, and city that the block group is located within. Collect the data for the geographies included within your project area.
2. If the project area consists of multiple block groups, cities, counties, or metropolitan areas, collect the number of households for each area using data from the American Community Survey as follows:
 - a. Go to <http://factfinder2.census.gov>
 - b. In the left-hand sidebar, click on “Topics.”
 - c. Under “Select Topics to add to ‘Your Selections,’” click on the plus sign next to “Housing.”
 - d. In the expanded list of topics that appears under “Housing,” click on the plus sign next to “Occupancy Characteristic.”
 - e. In the expanded list of topics that appears under “Occupancy Characteristic,” click on “Household Type”



Figure 3.1-1: Main H+T Index map page.

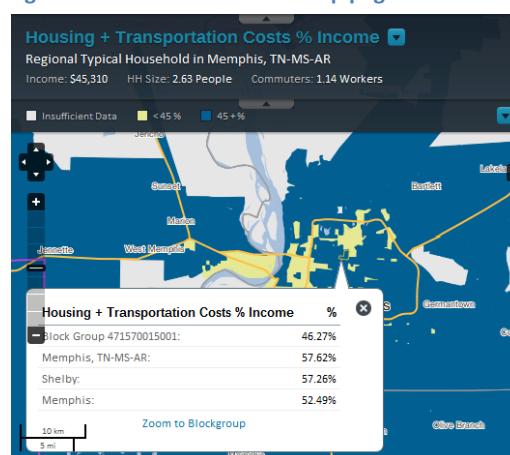


Figure 3.1-2: Close-up of H+T Index map showing statistics for the selected block group, metropolitan area, county, and city.



Figure 3.1-3: Main page for American FactFinder, the information portal for American Community Survey data.

- f. In the left-hand sidebar, click on “Geographies.”
 - g. Select a geographic type from the drop-down menu.
 - i. For metro areas, select “Metro Statistical Area/Micro Statistical Area 2010.”
 - ii. For counties, select “County.”
 - iii. For cities, select “Place within state.”
 - iv. For information on obtaining block group data, refer to Appendix A: *Working With Census Block Group Data*.
 - h. Choose the geographic area you would like to select.
 - i. Note that you can select multiple geographies from the drop-down menus by holding down the control key and clicking on multiple states, metro areas, or census tracts.
 - j. Click the “Add to Your Selections” button.
 - k. Click on “Close” in the upper-right corner of the “Select Geographies” box.
 - l. Scroll through the search results until you see the *Table B11001: Household Type (Including Living Alone)*.
 - i. If there are a large number of search results, you can locate the table more quickly by entering “B11001” in the “Narrow your search” box at the top of the “Search results” window. Click “GO.”
 - ii. Multiple results from different years and different estimates (1-year, 3-year, or 5-year) may be available for the same table. Select data from the desired year using estimate that is collected over the shortest time span (i.e., 1-year estimates are more desirable than 3- or 5-year estimates; 3-year estimates are more desirable than 5-year estimates).
 - m. At the top of the table view, under “Actions,” click on “Download” to download the file in Excel format in order to facilitate calculations.
3. Obtain block group-level data on number of households (*Table ID B11001: Household Type (Including Living Alone)*) from the ACS 5-Year Estimates. These data are not available through American FactFinder, but can be downloaded from the ACS summary files. See the *Working with Census Block Group Data* fact sheet for more information on how to obtain this data.
 4. Identify census tracts where at least 50 percent of households are low-to-moderate income.
 - a. Go to <http://egis.hud.gov/cpdmaps/>
 - b. Close the *Guide Me* window that pops up on the screen.
 - c. Use the map tools to zoom in on the area of interest.
 - d. Click the “Map Selection” icon in the upper-left corner of the page.
 - e. Click the arrow next to “Community Indicators”
 - f. In the expanded list that appears under “Community Indicators,” click on the arrow next to “Boundaries.” Then click on the arrow next to “Other.”
 - g. Click the check boxes next to “Census Tracts” and “Low-Mod Census Tracts.”

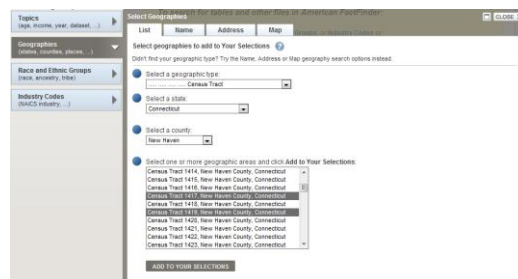


Figure 3.1-4: Selecting multiple census tracts from the Geographies menu.

- h. Scroll down in the Map Selection window and click the arrow next to “Other.”
 - i. In the expanded list that appears under “Other,” click the check box next to “Census Tract Labels.”
 - j. Click the line in the upper-right corner of the Map Selection Window to minimize the window.
 - k. Use the legend and map to identify Census tracts where more than 50 percent of households are low-to-moderate income, and note the Census tract number of each (if tract numbers do not display, you may need to zoom further in). If you need to close the legend in order to better view the map, you can re-open it by clicking on the legend icon on the toolbar at the top of the screen. If you are unable to distinguish whether a particular Census tract should be considered low-moderate income or not, click on the “identify” icon in the toolbar at the top of the screen, then click on the Census tract. A window will pop up displaying the percentage of low-moderate income households in that tract; a tract should be considered low-moderate income if “% Low-Mod” is over 50 percent.
5. Collect H+T Affordability Index data for block groups located within Census tracts where at least 50 percent of households are low-to-moderate income as in steps 1-4 above. Note that Census tract numbers are 11 digits and block group numbers are 12 digits; the first 11 digits of any block group will be the same as the number of the Census tract in which the block group is located.

Basic Calculation Steps:

1. If the project area is a single metropolitan area, county, city, or block group, no further calculations are required to calculate this indicator for the total project area population; simply collect housing and transportation costs as a percentage of income for the geographic area (as obtained in Step 1 above) and skip to Step 3 to calculate this indicator for households in block groups where median income is equal to or less than 50 percent of the area median income.
2. If the project area consists of multiple geographies, create a weighted average for housing and transportation affordability by multiplying housing and transportation costs as a percentage of income (obtained through Step 1 above) within each given geographical area by the percentage of total households in the project area (obtained through Step 2 above) that are located within that area, and summing the results across all geographic areas. For in-depth instructions on calculating weighted averages, including sample calculations, refer to the separate *Weighted Averages Calculation Worksheet*.
3. Sum the total number of households in block groups located within Census tracts where at least 50 percent of households are low-to-moderate income (obtained through steps 3 and 4 above)
4. Create a weighted average for housing and transportation affordability in block groups located within Census tracts where at least 50 percent of households are low-to-moderate income by multiplying housing and transportation costs as a percentage of income within each such block group (obtained through Step 5 above) by the percentage of the total number of households within the project area that are located within all block groups within Census tracts where at least 50 percent of households are low-to-moderate income (calculated in step 3), and summing

the results across all low-to-moderate income block groups. For in-depth instructions on calculating weighted averages, including sample calculations, refer to the separate *Weighted Averages Calculation Worksheet*.

Geographies, Data Updates, and Other Things to Consider: The CNT updates the census data that informs the H+T Index on an annual basis. However, these data are based on ACS 5-year estimates, and because there is likely to be a lag time before any cost effects of grant projects become apparent. Furthermore, the CNT intends to update the physical characteristics and transportation network data that underlie the transportation costs model, but has not yet specified a timeline for this update. Therefore, grantees should only collect H+T Index data at 5-year intervals, and should ensure that the data used to calculate transportation costs has been updated prior to collecting new data for this indicator.

The H+T Index is currently available in most metropolitan areas, but not in rural areas, nor in select metropolitan areas.

Data from CPD Maps is available for all U.S. states, counties, county subdivisions, Census places (cities) and Census tracts. CPD Maps is a new tool, and generally uses data that is current as of 2009. HUD intends to update the tool as new data becomes available, but does not have a regular program of updates planned.

If Data are Not Available: If H+T Index or CPD Maps data are not available for the project area, grantees should consult with the GTR about obtaining an exemption from calculating the measure.

In addition, data may not be available in a geography that exactly matches each project area. For example, the boundaries of Census block groups or tracts may not exactly match up with the boundaries of a project area that is in a corridor. In this situation, grantees should gather data from all block groups where over 50 percent of the land area of the tract is located within the project area.

If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

3.2. Equitable Development: Access to healthy food choices: Percent of total regional population that reside in a low income census tract AND reside more than one mile (urban areas) or ten miles (rural areas) from a supermarket/large grocery store.

Purpose of the Indicator: Multiple physical and socioeconomic factors, such as store/restaurant proximity, community characteristics, and income levels, interact to influence food choices and diet quality. Lack of access to healthy food choices is an important public health issue facing low-income communities. Most households want and need access to a local supermarket or grocery store in order to satisfy a range of nutritional needs, but siting of grocery stores is driven by the market, not by community needs. This creates food deserts, which are areas in which the local population does not have access to healthy food, either because no retailers are located nearby or because those that are offer food at more expensive prices than residents can afford. A larger proportion of low-income residents lack access to food choices because these residents often own fewer vehicles or have fewer transportation options, or because grocery owners sometimes do not perceive demand for stores in low-income neighborhoods. This indicator measures the proportion of the low-income population that is not located close to a supermarket or large grocery store in order to help grantees identify the share of a project area's population that potentially lacks access to healthy food.

Key Data Sources:

- **USDA Food Environment Atlas:** The Atlas compiles information on food choices from the 2006 STARS store directory and the 2006 Trade Dimensions TDLinx directory of stores,³ and community characteristics from Socioeconomic Data and Applications Center (SEDAC) grid data, which is based on information from the 2000 Census. The Atlas defines low-income households as households with annual incomes less than or equal to 200 percent of federal poverty thresholds for family size. The USDA makes data available through an online tool (<http://www.ers.usda.gov/FoodAtlas/>).

For subsequent years or for geographies not based on county boundaries, the measure must be recalculated using similar datasets of area grocery stores and block group data on income from the U.S. Census or American Community Survey 5-year estimates.

Data Elements: The required data elements can be found for every county as of 2006 in the downloadable database that is available from the USDA in the Data worksheet. The required data elements are:

- For urban areas, percent of total regional population that reside in a low income census tract AND reside more than one mile from a supermarket/large grocery store (column I, PCT_LOWI1MI).
- For rural areas, percent of total regional population that reside in a low income census tract AND reside more than ten miles from a supermarket/large grocery store (column M, PCT_LOWI10MI).

³ A more detailed description of methodology can be found at <http://ers.usda.gov/foodatlas/documentation.htm#low2006>

If the project area consists of multiple counties, grantees will need to create a weighted average of the indicator across the project area using additional information on the population of each county from the ACS, *Table ID B01003: Total Population*. Required data elements are:

- Total Population

Step-by-step Guidance on Obtaining Data:

- Obtain data on food access among low-income populations.
 - Download the USDA Food Environment Atlas from http://www.ers.usda.gov/FoodAtlas/downloads/data_download.xls and open the file.
 - Click on the “Data” tab.
 - Locate the county (or counties) in which your project is located by searching for the county’s name using the Find command, looking up the county’s FIPS code (Column C) or by sorting the NAME column (Column D) and scrolling down until you see the county name.
 - Take the required data value from the PCT_LOWI1MI column (Column I) or PCT_LOWI10MI column (Column M).
- If the project area consists of multiple counties, collect the population for each county using data from the American Community Survey as follows:
 - Go to <http://factfinder2.census.gov>
 - [Clear any previous searches.](#)
 - In the left-hand sidebar, click on “Topics.”
 - Under “Select Topics to add to ‘Your Selections,’” click on the plus sign next to “People.”
 - In the expanded list of topics that appears under “People,” click on the plus sign next to “Basic Count/Estimate.”
 - In the expanded list of topics that appears under “Basic Count/Estimate,” click on “Population Total”
 - In the left-hand sidebar, click on “Geographies.”

	A	B	C	D	E	F	G	H	I	J	K	L
	OBJECTID	FIPSTXT	FIPSNUM	NAME	STATE	NHHV1M	PCT_HHV1M	LOWI1M	PCT_LOWI1M	LOWI10M	PCT_LOWI10M	LOWI10M
1	1	10101	1001	Adams	Alabama	502	3.7	9274	21.02	251	1.24	2505
2	2	10103	1003	Baldwin	Alabama	1707	3.07	30657	22.09	78	0.14	999
3	3	10105	1005	Barbour	Alabama	726	6.97	9505	36.2	157	1.51	1275
4	4	10107	1007	Bibb	Alabama	596	7.94	7087	35.34	5	0.07	116
5	5	10109	1009	Blount	Alabama	844	4.38	14841	29.4	0	0	0
6	6	10111	1011	Bullock	Alabama	473	11.96	4459	44.15	182	4.59	1598
7	7	10113	1013	Butler	Alabama	541	6.46	6708	32.19	24	0.28	579
8	8	10115	1015	Calhoun	Alabama	1281	2.82	20814	18.92	0	0	0
9	9	10117	1017	Chambers	Alabama	828	5.71	9317	25.88	21	0.15	293
10	10	10119	1019	Cherokee	Alabama	512	6.25	8284	35.07	1	0.01	19
11	11	10121	1021	Chilton	Alabama	819	5.38	11941	30.63	20	0.13	280
12	12	10123	1023	Choctaw	Alabama	620	9.76	6986	44.48	213	3.36	1784
13	13	10125	1025	Clarke	Alabama	943	8.9	10565	38.39	122	1.15	1541
14	14	10127	1027	Clay	Alabama	390	6.81	4970	35.77	12	0.21	192
15	15	10129	1029	Cleburne	Alabama	259	4.57	4909	34.6	1	0.02	33
16	16	10131	1031	Coffee	Alabama	696	4.03	10226	24.12	37	0.22	1059
17	17	10133	1033	Colbert	Alabama	638	2.85	12449	22.93	9	0.04	154
18	18	10135	1035	Conecuh	Alabama	524	8.99	5872	41.74	132	2.26	1901
19	19	10137	1037	Cook	Alabama	317	6.78	4328	36.96	74	1.59	963
20	20	10139	1039	Covington	Alabama	734	4.67	10419	27.95	30	0.19	682
21	21	10141	1041	Crenshaw	Alabama	454	8.78	5303	39.18	208	3.7	2282
22	22	10143	1043	Cullman	Alabama	1314	4.31	21798	28.69	8	0.03	211
23	23	10145	1045	Dale	Alabama	686	3.62	13464	28.34	38	0.2	602
24	24	10147	1047	Dallas	Alabama	1498	8.4	15186	33.09	283	1.59	3052
25	25	10149	1049	DeKalb	Alabama	1171	4.67	21544	33.89	0	0	0
26	26	10151	1051	Etowah	Alabama	790	3.51	14169	23.7	32	0.14	394
27	27	10153	1053	Escambia	Alabama	687	4.87	10974	30.63	62	0.44	939
28	28	10155	1055	Etowah	Alabama	1136	2.74	20815	20.57	0	0	0
29	29	10157	1057	Fayette	Alabama	395	5.27	5564	30.67	7	0.09	134

Figure 3.2-1: Food Environment Atlas data worksheet.



Figure 3.2-2: Main page for American FactFinder, the information portal for American Community Survey data.

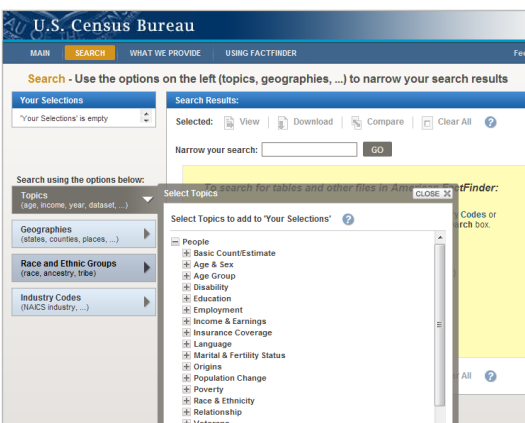


Figure 3.2-3: Selecting topics under "People" using FactFinder.

- h. Select “County” from the drop-down menu
- i. Select a state from the drop-down menu and then select the counties of interest from the search results by holding down the Ctrl key and clicking on multiple counties.
- j. Click the “Add to Your Selections” button.
- k. Click on “Close” in the upper-right corner of the “Select Geographies” box.
- l. Scroll through the search results until you see the Table ID B01003: Total Population.

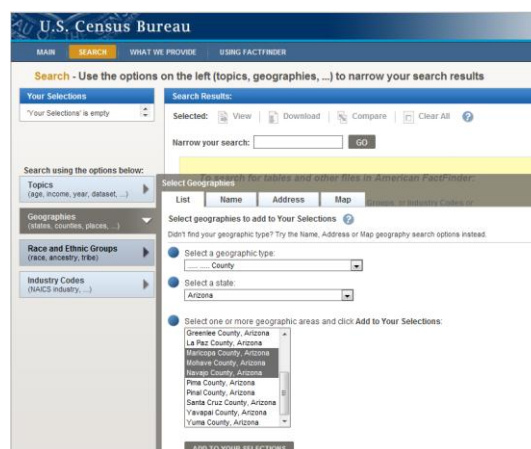


Figure 3.2-4: Selecting multiple counties using FactFinder.

- i. If there are a large number of search results, you can locate the table more quickly by entering “B01003” in the “Narrow your search” box at the top of the “Search results” window.
- ii. Multiple results from different years and different estimates (1-year, 3-year, or 5-year) may be available for the same table. Select data from the desired year using estimate that is collected over the shortest time span (i.e., 1-year estimates are more desirable than 3- or 5-year estimates; 3-year estimates are more desirable than 5-year estimates).
- m. At the top of the table view, under “Actions,” click on “Download” to download the file in Excel format in order to facilitate calculations.

Basic Calculation Steps: The data described above can be used as-is. However, if collecting data for a project area that spans multiple counties, users will need to weight by the county population when calculating the average value of this indicator for the project area. Create a weighted average by multiplying the percentage of the population that is low-income and does not have a grocery store within one mile in a given county by the percentage of the total project area that is located in that county, and summing the results across all counties in the project area. For detailed instructions on calculating weighted averages, including sample calculations, refer to the separate *Weighted Averages Calculation Worksheet*.

Geographies, Data Updates, and Other Things to Consider: The USDA Food Environment Atlas has 2006 data for all U.S. Counties. Note that for rural counties, the USDA uses a threshold of 10 miles from a grocery store for this indicator rather than one mile from a grocery store. The USDA does not appear to have any plans to update the data.

If Data are Not Available: Grantees seeking to get data for other geographies or to get more recent data may have to calculate this indicator themselves using the procedure outlined at <http://www.ers.usda.gov/FoodAtlas/documentation.htm#%low2006>. Estimating the distance of households to supermarkets requires making some assumptions about the exact locations of households. The Census and 5-year ACS provide data at the level of census block groups, but census

block groups vary in size and are sometimes irregularly shaped. These characteristics complicate measurements of distance, in which the centroid of the block group must generally be used as the starting point. The USDA used a more sophisticated method of geographical assignment provided by the Socioeconomic Data and Applications Center (SEDAC), but this is still subject to some degree of inaccuracy.

Updates to this measure can be calculated every 5 years, using data from the 5-year ACS. The USDA could be engaged to update the measure in the Food Environment Atlas on that schedule.

If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

3.3. Equitable Development: Access to open space: Percent of the population that resides within a half-mile (urban areas) or one mile (rural areas) of a park or open space

Purpose of the Indicator: Open space provides recreational options, encouraging physical activity and improving public health, as well as air and water quality benefits and improved quality of life. This indicator provides a measure of the extent to which residents have access to local parks and open space. Since this indicator requires grantees to map access to parks and open space throughout a project area, it also provides a means of identifying subareas that do not have adequate access to these amenities. In order to examine whether low-income residents have adequate access to open space, this indicator should be calculated both for the entire project area population as well as for the population residing in block groups located in census tracts within the project area where 50 percent of households are low-to-moderate income. A low-to-moderate income household is a household that earns 80 percent or less of the HUD area median family income (HAMFI).

Key Data Sources:

- Most local governments in urban areas have a **GIS layer of parks and open spaces** available. These data are preferable to nationally-available datasets such as *TeleAtlas* or *Open Street Map*, both because these datasets are less likely to be accurate and because some of them are only available for a fee.
- If the project area consists of one of the 40 largest U.S. Cities, some of the required data can be gathered from the **Trust for Public Lands' ParkScore tool** (<http://parkscore.tpl.org>). The fact sheets for each city include a park access metric that measures the percentage of the population within a half-mile of a park or open space. Note that grantees that use this approach will still have to calculate park access for low-income block groups separately.
- Most local governments will also have a GIS layer of census block groups available. If these data are not readily available, it can be downloaded from <http://www.census.gov/cgi-bin/geo/shapefiles2010.main>.
- The **American Community Survey (ACS)** is an ongoing survey that provides data every year on the social, demographic, and housing characteristics of communities throughout the U.S. Beginning in 2010, three versions of the ACS will be published annually. This indicator uses ACS data to identify block groups where household incomes are 50 percent or less of the area median income (AMI). The 5-year ACS contains data estimated at the level of block groups, averaged over the previous 5 years. The 1-year and 3-year ACS contain estimates averaged over smaller periods of time. Data are available at the county level for most counties in the 1-year ACS. Data on household incomes are available for 2005 and subsequent years. Individual data tables down to the census tract level can be viewed and downloaded through a web-based platform (<http://factfinder2.census.gov>). Data for census block groups must be extracted manually from the Summary Files.

- **Community Planning and Development (CPD) Maps** is an online tool (<http://egis.hud.gov/cpdmaps/>) created by HUD that allows users to access information about housing and economic conditions in their communities using a map-based interface. The tool contains information at the census tract level and above for the entire United States. CPD Maps draws data primarily from two sources. Demographic data come from the 5-year estimates of the 2005-2009 American Community Survey, and data on housing needs and supply come from the *Comprehensive Housing Affordability Strategy (CHAS)* data, which is a set of custom tabulations of Census data made available to HUD. CPD Maps also collects data on homelessness and public health from other HUD datasets and from the Center for Disease Control.

Data Elements: The data elements required are:

- A GIS layer containing the location of parks.
- A GIS layer containing the boundaries of census block groups within the project area.
- If using the ParkScore fact sheets, required data can be found under Percent of Residents within 1/2 Mile of a Park in the Access column.
- Block group level population data from the ACS, Table ID B01003: Total Population.
- Project area population data from the ACS, Table ID B01003: Total Population.
- Metro area (urban areas) or county (rural areas) level median income data from Table B19013: Median Household Income in the Past 12 Months.

In order to calculate this indicator for block groups located in census tracts within the project area where 50 percent of households are low-to-moderate income, grantees will identify these census tracts using CPD Maps. Required data elements are:

Low-Mod Census Tracts

Step-by-step Guidance on Obtaining Data:

1. Obtain GIS layer containing the location of parks from a local government.
2. Obtain GIS layer of the boundaries of census block groups within the project area.
3. If the project area is one of the 40 largest U.S. cities:
 - a. Go to <http://parkscore.tpl.org/city.php>.
 - b. Select the project area from the “Choose a City” drop-down menu.
 - c. In the upper-right corner of the table that appears, click “Download Map and Tables.”
 - d. View the tables on page 2.
4. Obtain data on total project-area population:
 - a. Go to <http://factfinder2.census.gov>
 - b. If there are already selections in the search box, click “clear all selections and start a



Figure 3.3-1: Main page for American FactFinder, the information portal for American Community Survey data.

new search” under “Your Selections” in the box on the left.

- c. In the left-hand sidebar, click on “Topics.”
- d. Under “Select Topics to add to ‘Your Selections,’” click on the plus sign next to “People.”
- e. In the expanded list of topics that appears under “People,” click on the plus sign next to “Basic Count/Estimate.”
- f. In the expanded list of topics that appears under “Basic Count/Estimate,” click on “Population Total”
- g. In the left-hand sidebar, click on “Geographies” and select a geographic area from the drop-down menu:
 - i. Grantees working on statewide projects should select “State.”
 - ii. Regional Planning Grantees should select “Metro Statistical Area/Micro Statistical Area 2010.”
 - iii. Community Challenge grantees working on corridor- or neighborhood-scale projects will need to identify the census tracts or block groups that make up the project area using the “Address” or “Map” tabs at the top of the “Select Geographies” box.
 - iv. Census tract-level data can be downloaded by selecting “Census Tract” in the “Select a geographic type” menu, selecting a state and county from the drop-down menus, and then selecting a census tract from the resulting list in the box marked “Select one or more geographic areas and click Add to Your Selections.”
 - v. Block group-level data from the ACS 5-Year Estimates can be downloaded by following the guidance in Appendix A: *Working With Census Block Group Data*.
- h. Note that you can select multiple geographies from the drop-down menus by holding down the control key and clicking on multiple states, metro areas, or census tracts.
- i. Click the “Add to Your Selections” button.
- j. Click on “Close” in the upper-right corner of the “Select Geographies” box.
- k. Scroll through the search results until you see the Table ID B01003: Total Population.
 - i. If there are a large number of search results, you can locate the table more quickly by entering “B01003” in the “Narrow your search” box at the top of the “Search results” window.
- l. Multiple results from different years and different estimates (1-year, 3-year, or 5-year) may be available for the same table. Select data from the desired year using estimate that is collected over the shortest time span (i.e., 1-year estimates are more desirable than 3- or 5-year estimates; 3-year estimates are more desirable than 5-year estimates).
- m. At the top of the table view, under “Actions,” click on “Download” to download the file in Excel format in order to facilitate calculations.

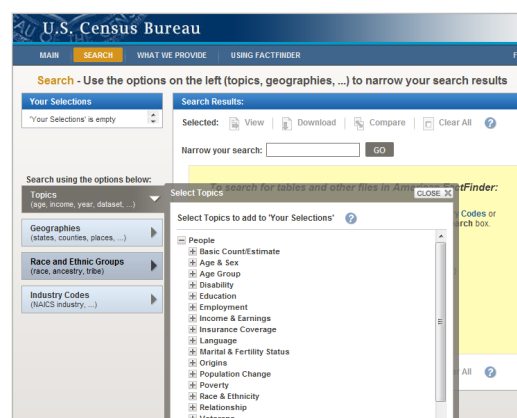


Figure 3.3-2: Selecting topics under "People" using FactFinder.

5. Obtain block group level population (*Table ID B01003: Total Population*) from the ACS summary files by following the instructions in the introduction.
6. Identify census tracts where at least 50 percent of households are low-to-moderate income.
 - a. Go to <http://egis.hud.gov/cpdmaps/>
 - b. Close the “Guide Me” window that pops up on the screen.
 - c. Use the map tools to zoom in on the area of interest.
 - d. Click the “Map Selection” icon in the upper-left corner of the page.
 - e. Click the arrow next to “Community Indicators”
 - f. In the expanded list that appears under “Community Indicators,” click on the arrow next to “Boundaries.” Then click on the arrow next to “Other.”
 - g. Click the check boxes next to “Census Tracts” and “Low-Mod Census Tracts.”
 - h. Scroll down in the Map Selection window and click the arrow next to “Other.”
 - i. In the expanded list that appears under “Other,” click the check box next to “Census Tract Labels.”
 - j. Click the line in the upper-right corner of the Map Selection Window to minimize the window.
 - k. Use the legend and map to identify Census tracts where more than 50 percent of households are low-to-moderate income, and note the Census tract number of each (if tract numbers do not display, you may need to zoom further in). If you need to close the legend in order to better view the map, you can re-open it by clicking on the legend icon on the toolbar at the top of the screen. If you are unable to distinguish whether a particular Census tract should be considered low-moderate income or not, click on the “identify” icon in the toolbar at the top of the screen, then click on the Census tract. A window will pop up displaying the percentage of low-moderate income households in that tract; a tract should be considered low-moderate income if “% Low-Mod” is over 50 percent.

Basic Calculation Steps: Grantees who collected park access data from ParkScore should skip to Step 6.

1. Using GIS software, join block-level population data (obtained through Step 5 above) to the map of census block group boundaries.
2. Locate the centroid of each census block group.
3. Conduct a network analysis to determine the distance between each block group centroid and the nearest park or open space.
4. Sum the population of block groups that are located within a half-mile (urban areas) or a mile (rural areas) or less from the nearest park or open space.
5. Divide the total population of block groups located over the threshold distance from the nearest park or open space by the total project area population (obtained in Step 3 above) to calculate the percentage of the total population with access to open space.
6. Repeat steps 2-4 for all block groups located within a census tract where more than 50 percent of households are low-to-moderate income. Note that Census tract numbers are 11 digits and block group numbers are 12 digits; the first 11 digits of any block group will be the same as the

number of the Census tract in which the block group is located. Sum the population of these block groups to calculate the total project area population with incomes that are 50 percent or less of HAMFI.

7. Divide the total population of block groups within a census tract where more than 50 percent of households are low-to-moderate income that are located over the threshold distance from the nearest park or open space by the total project area population residing in block groups within a census tract where more than 50 percent of households are low-to-moderate income to estimate the percentage of low-income population with access to open space.

Geographies, Data Updates, and Other Things to Consider: Block group-level data are only available through the 5-year ACS. While this dataset is updated annually, data from overlapping time frames should not be compared. For example, the 2006-2010 5-year ACS estimates and the 2007-2011 5-year estimates cannot be compared to determine changes in the number of households within walking distance of parks.

Though communities often have GIS layers of parks and open spaces, these may differ in their definitions of a “park.” For example, communities may differ in whether they consider facilities such as school playgrounds or unimproved open space to be parks. Communities should be transparent about their definition of parks and open space when submitting data on this indicator. We suggest defining areas as parks or open spaces only if they are open to the public for recreational purposes during daylight hours every day of the year.

The boundaries of census block groups or tracts may not exactly match up with the boundaries of a project area. In this situation, grantees should gather data from all block groups or tracts where over 50 percent of the land area of the block group or tract is located within the project area.

Data from CPD Maps is available for all U.S. states, counties, county subdivisions, Census places (cities) and Census tracts. CPD Maps is a new tool, and generally uses data that is current as of 2009. HUD intends to update the tool as new data becomes available, but does not have a regular program of updates planned.

If Data are Not Available: ACS data should be available for all areas of the U.S. However, local governments may not have a GIS layer containing the location of parks and open spaces. If this is the case, grantees should download national data from sources such as *TeleAtlas*, *NAVTEQ*, or *Open Street Map*. Use caution with the latter, as *Open Street Map* data are contributed by multiple users, and may not have 100 percent coverage in all areas.

If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator’s overall objective. If CPD Maps or other data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

4. Economic Resilience

4.1. Economic Resilience: Economic Diversification Index

Purpose of the Indicator:

The purpose of this indicator is to capture the diversity of employment sectors located in an area. It is not an indicator of potential for economic growth or production. Instead, this proxy for economic resilience measures the ability of a local economy to adapt to change in the event that any one employment sector faces decline. Employment by industry, within the relevant jurisdiction for the grantee (for example a zip code or metropolitan statistical area), is calculated using census data. The employment distribution across industries within a locality is then benchmarked against the national level employment distribution, to compute the economic diversification index for that locality:

$$R_i = \sum \left| \left(\frac{E_{ij}}{E_i} - \frac{E_j}{E} \right) \right|$$

Where

E_{ij} = employment in jurisdiction i in industry j ,

E_i = total employment in jurisdiction i ,

E_j = total employment in industry j nationwide, and

E = total employment in all industries nationwide.

The assumption underlying this indicator is that local jurisdictions that are highly specialized have employment concentrated in relatively few industries, making those jurisdictions less resilient should a negative economic impact occur. Values close to zero indicate the local jurisdiction of interest has about the same proportion of people employed in each industry as the nation (i.e., is close to, or is as economically diverse as the nation). Higher values approaching or exceeding 1.0 indicate that employment is more specialized (less diverse) in the local jurisdiction relative to the nation. Therefore, jurisdictions with values closer to zero are interpreted as having high economic resiliency, while jurisdictions with higher values are interpreted as having low economic resiliency.

Economic resilience is a complex concept affected by many regional factors. Measures of economic resilience have not been tracked in many U.S. metropolitan areas, and there are still many questions about which indicator or collection of indicators best reflects local economic adaptability. Because of this, we recommend that grantees not rely solely on the Economic Diversification Index as a complete measure of the resilience of their region or community. This indicator has been utilized in Washington to estimate the relative economic diversity of county-level jurisdictions benchmarked to the state as a whole.⁴ More information on other ways of measuring resilience are available from the *Building Resilient Regions* initiative at the University of California Berkeley.⁵

⁴ Daniels, Jean M. "Assessing Socioeconomic Resiliency in Washington Counties." *General Technical Report PNW-GTR-607*. United States Department of Agriculture Forest Service Pacific Northwest Research Station: Portland, OR. April 2004. <http://www.fs.fed.us/pnw/pubs/gtr607.pdf>

Key Data Sources:

- **United States Census Bureau County Business Patterns (CBP)**
(<http://www.census.gov/econ/cbp/>) is an annual series that provides subnational economic data by industry. This series includes the number of establishments, employment during the week of March 12, first quarter payroll, and annual payroll. These data are useful for studying the economic activity of small areas; analyzing economic changes over time; and as a benchmark for other statistical series, surveys, and databases between economic censuses. Businesses use the data for analyzing market potential, measuring the effectiveness of sales and advertising programs, setting sales quotas, and developing budgets. Government agencies use the data for administration and planning.

Data Elements:

- Number of Establishments by Employment-size class by North American Industry Classification System (NAICS) code for the project area (if using zip code-level data); **OR**, Paid employees for pay period including March 12 (number) by NAICS code, for the project area (if using MSA-level data).
- Total paid employees for pay period including March 12 (across all industries in the zip code/MSA)
- Paid employees for pay period including March 12 (number) by NAICS code, for the nation.
- Total paid employees for pay period including March 12 (number) for all sectors for the nation.

Step-by-Step Guidance on Obtaining Data

1. Go to <http://www.census.gov/econ/cbp/>.
2. Enter the relevant geography in the table at the bottom of the screen.

View data in tables

U.S., States, and Counties ¹ (1998-2009)	Select a state	Go!
Puerto Rico (2003-2009) and Island Areas (2008 to 2009)	Puerto Rico	Go!
Zip Codes ² (1998 to 2009) (Enter 5-digit ZIP Code)		Go!
Metropolitan and Micropolitan Statistical Areas ³ (1998-2009)	Rockford, IL Metro	Go!

Figure 4.1-1: Selecting the Relevant Geography under “View data in tables” using census.gov.

- a. For Community Challenge Grantees, the relevant local jurisdiction can be defined by zip code, and the benchmark jurisdiction for comparison is the nation. If the CCG encompasses multiple zip codes, the values for the zip codes should be summed and then compared to the nation.

⁵ <http://brr.berkeley.edu/>

- b. For Regional Planning Grantees, the relevant local jurisdiction is the Metropolitan or Micropolitan Statistical Area (MSA), and the benchmark jurisdiction for comparison is the nation. Figure 18 above shows a selection for the Rockford, IL Metro MSA.
3. First, employment by NAICS code for the relevant local jurisdiction variable is calculated. Use the County Business Patterns tables from the U.S. Census Bureau. Select the relevant zip code or MSA from the “View data in tables” section (Figure 18 above). In this case, the MSA selected is “Rockford, IL Metro”. Click “Go!” The table that results is displayed in Figure 19 below.



Figure 4.1-2: Resulting data for Rockford, IL Metro.

4. Click “save as csv file” at the bottom of the page, to save the data in an excel sheet.
5. Obtain employment in the project area in industry (j) (E_{ij}).
The variables of interest are:
 - a. “Industry Code” tells you the industry in which employment is being counted
 - b. For CCGs, using zip code as the relevant jurisdiction: “Number of Establishments by Employment-size class” provides the number of establishments of a certain size class in each industry. To obtain the number of employees across establishments in the industry, it is necessary to take the median of the number of employees by employment size class, multiply this by the number of establishments for each employment size class, and sum across employment size classes for each industry, to produce one employment number for each industry in the zip code.
 - c. For RPGs, using MSA as the relevant jurisdiction: Use the first table that appears at the top of the screen (as shown in Figure 19 above), and use the “Paid employees for pay period including March 12 (number)” variable. For any industries for which a letter code (ie. “b”)

rather than a number are given, use the key at the bottom of the excel sheet to find the range of values for which this variable stands.

6. Obtain total employment in the project area (E_i).
 - a. For CCGs, use the total employment in the zip code: The variable of interest is “Paid employees for pay period including March 12”, given in the “Totals for Zip Code table” at the top of the page.
 - b. For RPGs, use the total employment in the MSA: This is given in the first row of the table where the “Industry of Interest” reads “Total”.
7. Next, employment by NAICS code for the reference jurisdiction (the nation), is calculated. Go back to <http://www.census.gov/econ/cbp/> and this time enter the relevant geography as “United States” and click “Go!”
8. Click “save as csv file” at the bottom of the page, to save the data in an excel sheet.
9. Obtain total employment in industry j nationwide (E_j).
The variables of interest are:
 - a. “NAICS code” tells you the industry in which employment is being counted.
 - b. “Paid employees for pay period including March 12 (number)” tells you the employment in that industry in the U.S. For any industries for which a letter code (i.e. “j”) rather than a number are given, use the key at the bottom of the excel sheet to find the range of values for which this variable stands. Take the median of the number of employees to use in your calculation.
10. Obtain total employment in all industries in the reference area (nation) (E).
 - a. Obtain this number from the first row of the table, which reads “Total for all sectors” under the column heading “NAICS code description”.

Basic Calculation Steps:

For in-depth instructions on calculating this measure, including sample calculations, refer to the separate *Economic Resilience Index Calculation Worksheet*, which gives examples and templates to use when calculating this measure for both Regional Planning grantees and Community Challenge grantees.

1. If you had to calculate the **median** at any point in the above calculations, it is necessary to use the following steps below to normalize your data. All CCGs using zip code data will need to normalize their employment numbers. Any RPG who had to replace a letter in the data table with a median value of a range will also need to normalize employment numbers. The reason is that if you used medians in your calculation, it is likely that the total employment across all industries given by the census tables does not match the total employment across all industries that you calculated based on the median number of employees. Check to see if this is the case. Because employment was calculated from a median number of employees, not from the actual number of employees, this total may differ from the total “Paid employees for pay period including March 12” given in the table on the census website. To correct for this difference, it is necessary to normalize the employment numbers. To do this:
 - a. First, sum the employment across all industries that you calculated to get a total employment number.
 - b. Then, divide the employment number in each industry **by the total employment number just calculated**.
 - c. Finally, multiply this result by the “Paid employees for pay period including March 12” total **given in the table**.
 - d. This gives you the normalized employment number for each industry in the zip code (E_{ij}).
2. If your project area consists of multiple geographies, sum the normalized employment by industry across all geographies.
3. Divide the normalized employment by industry by total employment (as given in the census table) to get E_{ij}/E_i for each industry.
4. Repeat this normalization process for total employment in industry j in the reference area (nation) if medians were used in that calculation as well.
5. Next, compute the Economic Diversification Index:

$$R_i = \sum \left| \left(\frac{E_{ij}}{E_i} - \frac{E_j}{E} \right) \right|$$

Where

E_{ij} = employment in planning area i in industry j ,

E_i = total employment in planning area i ,

E_j = total employment in industry j in the nation, and

E = total employment in all industries across the nation.

In the Economic Resilience Worksheet example, the result is that $R_i = 0.3152$ which can be interpreted as: The economic diversity of this jurisdiction is closer to that of the nation, and the jurisdiction can be considered to have higher economic resiliency than jurisdictions with larger values.

Geographies, Data Updates, and Other Things to Consider: These data are available for all areas of the U.S. at the metropolitan area, county, zip code, state, or national level. This measure is relatively straightforward to calculate using Census data, but may require some definition of what the relevant jurisdiction is for calculating both the region itself, and the region used for the benchmark, as how this choice is made will greatly impact the results of the index calculation. The team has defined the community and regional jurisdictions, (definitions which may not correspond perfectly to the geographical boundaries of the planning grant), as follows: For Community Challenge Grantees, the relevant local jurisdiction is the zip code, and the benchmark jurisdiction for comparison is the nation. If the CCG encompasses multiple zip codes, the values for employment by sector in the project area (E_{ij}) and total employment in the project area (E_i) should be summed across zip codes and then compared to the nation. For Regional Planning Grantees, the relevant local jurisdiction is the Metropolitan or Metropolitan Statistical Area (MSA), and the benchmark jurisdiction for comparison is again the nation.

If Data are Not Available: Rural jurisdictions will likely be exempted from calculating this measure because data may not be available. Data should be available for all other grantees. If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

4.2. Economic Resilience: General Local Government Debt-to-Revenue Ratio

Purpose of the Indicator: This measure captures the capacity of the local government to absorb jurisdiction-wide economic shocks and recover, or the ability of an economy to recover quickly from exogenous shocks. Shock counteraction is associated with the flexibility of an economy (such as having fiscal surpluses which will enable countercyclical policy-making) and shock absorption is associated with having mechanisms to reduce the impact of shocks. This may involve the capacity of the local government and planners to have discretionary policy tools and budgetary resources that can be used to counteract the effects of negative shocks. A healthy fiscal position would allow adjustments to taxation and expenditure policies in the face of adverse shocks. This indicator has been used as a proxy in indices of resilience.⁶

Key Data Sources:

- The **United States Census Bureau's County and City Data Book (2007)** is a comprehensive source of information about the individual counties and cities in the United States. It includes data for all U.S. states, counties, and cities with a population of 25,000 or more. It contains additional data for places with a population of 100,000 or more. Also included is a complete set of state maps showing all counties, places of 25,000 or more population, and metropolitan areas. Information in the County and City Data Book covers the following economic topical areas: business establishments, earnings, employment, finance, labor force, and, poverty.⁷
- In many cases, local governments may calculate this value internally for planning and decision-making purposes. In this case, this value may be used directly, and may not need to be calculated.

Data Elements:

- General revenue, Total (\$1,000)
- Total debt outstanding, Amount (\$1,000)

Step-by-Step Guidance on Obtaining Data:

1. Go to <http://www.census.gov/statab/ccdb/ccdbstcounty.html>.
2. Click on *Table B-13. Local Government Finances and Elections*, under "Counties".
3. Data in this table is given by county only. Therefore, grantees should identify the relevant county for calculation. For example, the East Alabama Regional Planning and Development Commission is located in Anniston, AL, however Anniston, AL is not a choice in the table. Anniston, AL is located in Calhoun County, AL. Data for this county is available in the table.
4. Obtain the General revenue, total (\$1,000) from column G. In the case of Calhoun County, the General revenue, total (\$1,000) is \$361,935,000.

⁶ <http://www.econstor.eu/bitstream/10419/45146/1/571437761.pdf>

⁷ United States Census Bureau. *County and City Data Book*. 2007. <http://www.census.gov/statab/www/ccdb.html>

5. Obtain the Total debt outstanding (\$1,000) from column O. In the case of Calhoun County, the Total debt outstanding, Amount (\$1,000) is \$165,240,000.

Basic Calculation Steps:

1. To calculate general local government debt-to-revenue ratio, divide the total debt outstanding amount by the total general revenue.

Geographies, Data Updates, and Other Things to Consider: Currently the latest data available in these tables seems to be from 2002, although the City and County Data Book was updated in 2007. The main problem with this data source is that it is available only at the county level, which will require grantees to calculate the ratio for a geographical boundary that may not exactly match the planning grant's boundaries, if they rely on census, rather than local, data.

If Data are Not Available: If data are not available at the appropriate level of measurement in the Census, grantees should be able to easily calculate this measure from local records since debt and revenue are common items included in a city's balance sheet. If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

5. Growth Through Reinvestment

5.1. Growth Through Reinvestment: Net acres of agricultural and natural resource land lost annually to development per new resident

Purpose of the Indicator: This indicator measures the extent to which new development in project areas consumes land that was previously set aside for agricultural or natural resource uses. Values close to zero indicate that growth is occurring through reinvestment in existing communities and infill development; whereas high values indicate that new growth is occurring primarily on previously undeveloped land. Low values for this indicator are associated with a host of positive outcomes, including revitalization of existing neighborhoods and reduced driving, whereas high values imply increased development pressure on agricultural and resource lands and an increase in vehicle travel due to new development locating farther from existing amenities.

Key Data Sources:

- The Partnership recommends using the **National Land Cover Database (NLCD)** to track changes in agricultural and natural resource land cover. The NLCD is a raster, geo-referenced, categorized land cover data layer produced using satellite imagery. The data layer grids and categorizes the entire United States in 30m x 30m squares using 21 land cover categories. The *NLCD 2006 From – To Change Index* identifies grid cells where land uses changed over the period 2001-2006. This data layer can be easily used to estimate loss of agricultural land to development.
- The NLCD should be supplemented with **state or local land use data** where available. The NLCD is best used to characterize land cover types at a regional scale. Available information on the accuracy of the NLCD is presented relative to regional land cover totals. Results are likely to be less accurate than those in published studies when using the NLCD to determine land cover types at the parcel level, to determine whether individual parcels were previously developed. Likewise, greater inaccuracy can be expected when using the NLCD to estimate gross conversion of land use types for small jurisdictions. State and local land use layers may be available at a higher resolution (smaller grid cell size) or use other methods to improve the accuracy of local results. Some states produce their own land use data layers, including vector-based layers. A vector-based layer is likely to provide a more accurate picture of land cover types at the level of a city or county. Individual jurisdictions should decide on a consistent way to track land cover changes within their own areas using the most accurate data available to them.
- To measure population growth, grantees should use data from the **American Community Survey (ACS)**, an ongoing survey that provides data every year on the social, demographic, and housing characteristics of communities throughout the U.S. For most geographies, these data are available through the Census Bureau's online platform (<http://factfinder2.census.gov>), but block-group level data must be extracted manually from the ACS Summary Files.

Data Elements:

- Land area converted from agricultural/natural resource uses to other uses from the *NLCD From – To Change Index*.
- Project area population data from the ACS, *Table ID B01003: Total Population*.

Step-by-step Guidance on Obtaining Data:

1. Define the community boundary. The boundary should encompass all lands in and around a community that may be subject to development due to land use decisions made by that community.
2. Download *NLCD 2006 From – To Change Index* data:
 - a. Go to http://www.mrlc.gov/nlcd06_data.php.
 - b. Scroll down to “NLCD2006 Supplementary Layers, and click on “NLCD2006 From – To Change Index” to download data. Note that this is a large file, and may take a while to download.
3. If available, obtain state or local land cover or land use data.
4. Obtain data on total current and base year population within the community boundary:
 - a. Go to <http://factfinder2.census.gov>
 - b. If you’ve done previous searches, click “Clear all selections and start a new search” in the “Your Selections box” on the left.
 - c. In the left-hand sidebar, click on “Topics.”
 - d. Under “Select Topics to add to ‘Your Selections,’” click on the plus sign next to “People.”
 - e. In the expanded list of topics that appears under “People,” click on the plus sign next to “Basic Count/Estimate.”
 - f. In the expanded list of topics that appears under “Basic Count/Estimate,” click on “Population Total”
 - g. In the left-hand sidebar, click on “Geographies” and select a geographic area from the drop-down menu:
 - i. Grantees working on statewide projects should select “State.”

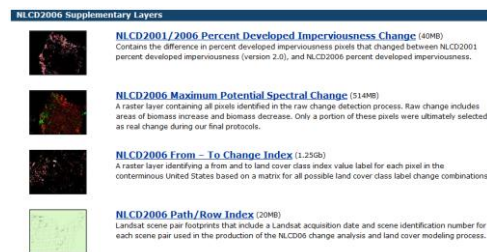


Figure 5.1-1: Supplementary layers section of the NLCD website. From – To Change Index is the third dataset from the top.

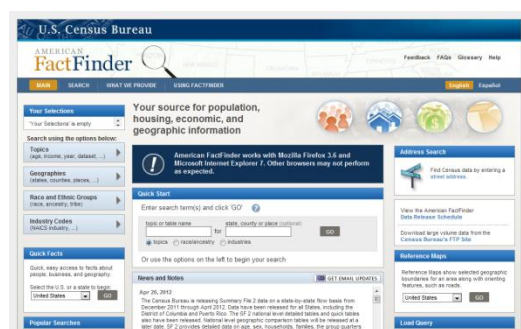


Figure 5.1-2: Main page for American FactFinder, the information portal for American Community Survey data.

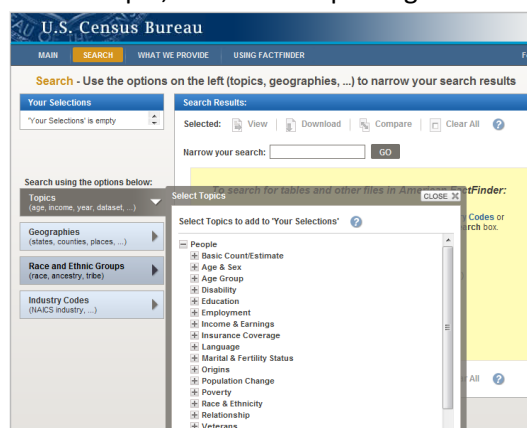


Figure 5.1-3: Selecting topics under "People" using FactFinder.

- ii. Regional Planning Grantees should select “Metro Statistical Area/Micro Statistical Area 2010.”
- iii. Community Challenge grantees working on corridor- or neighborhood-scale projects will need to identify the census tracts or block groups that make up the project area using the “Address” or “Map” tabs at the top of the “Select Geographies” box.
- iv. Census tract-level data can be downloaded by selecting “Census Tract” in the “Select a geographic type” menu, selecting a state and county from the drop-down menus, and then selecting a census tract from the resulting list in the box marked “Select one or more geographic areas and click Add to Your Selections.”
- v. Block group-level data can be downloaded by following the guidance in Appendix A: *Working With Census Block Group Data*.
- h. Note that you can select multiple geographies from the drop-down menus by holding down the control key and clicking on multiple states, metro areas, or census tracts.
- i. Click the “Add to Your Selections” button.
- j. Click on “Close” in the upper-right corner of the “Select Geographies” box.
- k. Scroll through the search results until you see the Table ID B01003: Total Population.
 - i. If there are a large number of search results, you can locate the table more quickly by entering “B01003” in the “Narrow your search” box at the top of the “Search results” window.
- l. Multiple results from different years and different estimates (1-year, 3-year, or 5-year) may be available for the same table. Select data from the desired years (current and base year) using the estimate that is collected over the shortest time span (i.e., 1-year estimates are more desirable than 3- or 5-year estimates; 3-year estimates are more desirable than 5-year estimates).
- m. At the top of the table view, under “Actions,” click on “Download” to download the file in Excel format in order to facilitate calculations.

Basic Calculation Steps:

1. Define the community boundary. The boundary should encompass all lands in and around a community that may be subject to development due to land use decisions made by that community.
2. Use GIS software to identify areas within the community boundary where agricultural and natural resource land has been converted to developed land.
 - a. If using the NLCD From – To Change Index (obtained through Step 2 above), these are grid cells where land has been converted from agricultural (planted/cultivated) classifications or natural resources (barren, forest, shrubland, herbaceous, or wetland) classifications to one of the four land use categories that are classified as “developed.” For more information on the land cover classifications used by the NLCD, see http://www.mrlc.gov/nlcd06_leg.php.

- b. If using state or local data (obtained through Step 3 above), methods for identifying areas that have changed from natural resource or agricultural uses to developed land will depend upon the dataset. If the dataset includes a change index layer similar to the *NLCD From – To Change Index*, grantees may be able to base this analysis on a single layer; otherwise they may have to compare multiple layers to identify areas of change. If there is uncertainty about which areas should be classified as natural resource, agricultural, or developed lands, refer to Step 2a above.
3. Calculate the total area in acres of agricultural and natural resource land converted to developed land.
4. Using ACS population data (obtained through Step 4 above), calculate change in population within the community boundary by subtracting the base year population from the current year population.
5. Divide net acres of agricultural and natural resource land lost by population change.

Geographies, Data Updates, and Other Things to Consider: This indicator should only be calculated at the community-wide (e.g. metro area or county) level. It would be prohibitively difficult to isolate the impacts of smaller-scale projects on land conversion given the many other factors that create development pressure at the regional scale.

The NLCD is not currently updated on a consistent schedule. Given the past record of updates, it is likely that new information will be made available in the NLCD every 5-10 years.

Care should be taken when defining community boundaries, which will not necessarily be contiguous with project areas. If, for example, the boundary is drawn too tightly around a community, the measure could show little or no agricultural land lost to development, when in fact leapfrog development could be causing substantial loss of agricultural land outside the boundary. Conversely, if the boundary encompasses too much rural land, the percent lost to development will appear artificially low.

If Data are Not Available: Both the 2006 NLCD and the ACS data should be available for the entire U.S., so all grantees should be able to calculate at least baseline data for this indicator. The availability of follow-up data will depend upon updates to the NLCD and on state and local efforts to collect data.

If a grantee is unable to locate the data for their defined area, they can request assistance from the TA team to locate alternative data sources to meet that indicator's overall objective. If data are unavailable, they may request a waiver from their GTR. Grantees with questions or support requests may contact the TA team for assistance by emailing OSHChelp@icfi.com.

1. Download the *Summary File Retrieval Tool* (a Microsoft Excel file with macros) from http://www2.census.gov/acs2010_1yr/summaryfile/UserTools/SummaryFileDataRetrievalTool.zip and extract the Excel file using a decompression utility.
2. Download the user guide for the tool from http://www2.census.gov/acs2010_1yr/summaryfile/UserTools/SFRetrievalToolUsersGuide.pdf.
3. If the links above do not work, visit the ACS Summary File website at http://www.census.gov/acs/www/data_documentation/summary_file/.
4. Open the Excel File and enable macros.
5. Follow the step-by-step directions in the User Guide to locate the block group files for the relevant data table. The relevant data table will vary depending on the indicator in question, and is listed in the Required Data Elements section for each indicator.
6. When selecting a Data Product in the Select a Major Geographic Area and Dataset window make sure to select the most recent 5 Year ACS Estimates available.
7. Choose "Select by Table ID" in the Table Lookup window and make sure the check box is checked for "Tract and Block Groups ONLY (no checkmark defaults and Block Groups)."
8. If the Summary File Retrieval Tool does not work on your computer, see the ACS Technical Documentation (http://www2.census.gov/2010_SF_Tech_Doc.pdf) to access the data for the block group.

Figure A-1: Check boxes allowing user to Select by Table ID and search for data from Tract and Block Groups ONLY.

Figure 1: Using the Data Retrieval Tool to filter for block group level results.

1. Select the variable you want and then follow the directions in the user guide to filter for Block Groups only.

2. Open a new Excel workbook.
3. Highlight the entire worksheet and then right click "Copy" on the worksheet.
4. In a blank sheet within the new Excel workbook, right click the cell in the upper left-hand corner and select "Paste Special," then choose "Text" from the list from within the pop-up menu. You may get a message warning that this will take longer than 60 seconds and asking if you would like to proceed; click OK. It may take a few minutes to paste data into the new workbook.
5. Once the sheet has pasted make sure that you have the correct number of cells and that all headers have been pasted in.
6. Delete the first row with the header containing the table ID and name.
7. Save this Excel workbook.
8. Open up Microsoft Access and import the Excel workbook that you created into MS Access using the 'Get External Data' wizard.
9. Use the 'Get External Data' wizard to import the Census geography worksheet to which you wish to join the data.
10. Use the query wizard in Access to join the two tables based on the LOGRECNO field.
11. Clean the data in the GEOID field using the LEFT() function to prepare GEOID for a join to geographic data.